Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 771 MAINTENANCE SHOP

REVISION 0

June 17, 2003

1/54

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos Containing Material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
HEUN	Highly Enriched Uranyl Nitrate
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
PDSR	Pre-demolition survey report
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSOP	RFCA Standard Operating Protocol
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity

VOCs	Volatile organic compounds
WSRIC	Waste Stream and Residue Identification and Characterization

EXECUTIVE SUMMARY

A Pre-Demolition Survey was performed to enable compliant disposition and waste management of the Building 771 Maintenance Shop. Because this Type 3 building will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as part of this PDS included the Maintenance Shop interior floor, walls, ceiling, and exterior surfaces. Environmental media beneath and surrounding the Maintenance Shop was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

The PDS encompassed both chemical and radiological characterization. The characterization was built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project.*

Based upon this PDSR, the Building 771 Maintenance Shop can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. All under-slab utilities and piping systems shall be managed as radioactive waste during slab demolition, unless additional data collected during demolition proves otherwise. The common wall between the Maintenance Shop and 771 Building Proper shall not be demolished until the Building 771 PDS is completed verifying the common wall is acceptable for demolition. To ensure that the facility remains free of contamination and PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

1 INTRODUCTION

A Pre-Demolition Survey was performed to enable compliant disposition and waste management of the Building 771 Maintenance Shop. The B771 Maintenance Shop consists of rooms 129, 129A/B/C/D/F, 130, 131, 132, 132A, and Dock 2. Because this Type 3 building will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as part of this PDS included the Maintenance Shop interior floor, walls, ceiling, and exterior surfaces. Environmental media beneath and surrounding the Maintenance Shop was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these is the Building 771 Maintenance Shop. This facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this Type 3 facility can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for the Building 771 Maintenance Shop. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS is built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0.

1.1 Purpose

The purpose of this report is to communicate and document the results of the Building 771 Maintenance Shop PDS effort. A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of the Building 771 Maintenance Shop. Environmental media beneath and surrounding the facilities are not within the scope of this PDSR and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Section 2.0 of the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. The Building 771 Hazards Characterization was performed in June 2001 (Refer *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0). Based on the characterization results, radiological contamination was identified in Building 771, and the Building 771 Maintenance Shop was identified as a Type 3 facility (primarily due to the physical proximity of the Maintenance Shop to Building 771). Therefore, a PDS was required before demolition of the facility.

The B771 Maintenance Shop is considered a Type 3 facility due to its physical proximity to Building 771. However, the survey units that encompass the Maintenance Shop area are classified based on contamination potential, per Section 3.0 of the PDSP.

This report documents the results of that PDS. The hazards characterization results and historical review (refer to Attachment H) were used to identify PDS data gaps and needs, and to develop radiological and chemical PDS characterization packages. Characterization documentation is located in the Building 771 Characterization Project files.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

The Building 771 Maintenance Shop was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern (weapons-grade plutonium isotopes). Based upon a review of the characterization data, historical and process knowledge, in-process survey data, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to survey packages 771031, 771068, 771081, 771082, and 771095). A Survey Unit Overview Map is presented in Attachment A. Based on hazards characterization data and historical and process knowledge, transuranic isotopes are the primary contaminants of concern in Building 771. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 771 Characterization Project files.

The Building 771 Maintenance Shop survey unit packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure.* Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures.* Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis.* Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control.* Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachments B through E, *Radiological Data Summary and Survey Maps.*

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Maintenance Shop Proper – (Survey Unit 771031)

The Maintenance Shop Proper was classified as a Class 2 survey unit. The classification was based on the potential for contamination due to process history, although no contamination in excess of the unrestricted release limits was identified during the equipment removal and room strip-out. Contamination was identified on the floor and lower wall of Room 131 during the initial PDS. Therefore, Room 131 was designated as two additional survey units (771081 and 771082) and not included in the scope of survey package 771031. A total of 15 random TSA and RSA measurements, and 15 media samples were collected. Surface scan surveys of 100% of the floor and wall surfaces below 2 meters (799 m^2) and 10% of the upper walls/ceiling (185 m^2) were also performed.

Prior to the removal of Room 131 from this survey unit, fifteen media samples were collected throughout the Maintenance Shop as part of the initial PDS survey. No activity in excess of the $DCGL_W$ was identified in these samples. This data is utilized for information purposes only and is included in the 771031 survey package.

All scans, surveys, and media sample results in survey unit 771031 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771031 are presented in Attachment B, *Survey Unit 771031 Radiological Data Summary and Survey Map.*

Room 131 – Floors and Walls Below 2 Meters (Survey Unit 771081)

The floors and lower walls of Room 131 were classified as a Class 1 Survey Unit, due to the identification of several spots of contamination in excess of the DCGLs (identified during initial PDS scans of the Maintenance Shop). A total of 15 random TSA and RSA measurements were taken and scan surveys performed. Surface scan surveys of 100% of the floor/lower wall surfaces (67 m^2) were performed. No media samples were collected, because the paint was removed from the surface prior to PDS.

Fixed radiological contamination up to 891 dpm/100cm^2 was identified in several discrete locations of the floor and one spot on the lower wall of Room 131, including a 26,469 dpm/100cm^2 spot identified inside a trough that had previously been grouted (the grout was removed in order to complete the PDS). An embedded pipe (drain) was physically removed from the trough and PDS follow up scan surveys verified the contamination was removed. All other areas of contamination were remediated by removing the affected area of concrete. The remaining portion of the drain (located in the yard area west of the Room 131) will be removed during slab demolition.

Because the contamination was limited primarily to the floor, the source of the contamination was most likely a liquid spill. Therefore, the upper walls/ceiling of Room 131, which would not have been affected by a liquid spill, was delineated as a separate survey unit (771082).

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All other locations and surveys in survey unit 771081 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771081 are presented in Attachment C, *Survey Unit 771081 Radiological Data Summary and Survey Map.*

Room 131 – Upper Walls Above 2 Meters and Ceiling (Survey Unit 771082)

The Upper Walls/Ceiling of Room 131 was classified as a Class 2 survey unit. The classification was based on the potential for contamination due to the identification of contamination on the floors/lower wall of the room, although no contamination in excess of the unrestricted release limits was identified on the upper walls during the initial PDS. A total of 15 random TSA and RSA measurements, and 15 media samples were collected. Surface scan surveys of 50% of the upper walls (26 m^2) and ceiling (24 m^2) were also performed.

All scans, surveys, and media samples results in survey unit 771082 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771082 are presented in Attachment D, *Survey Unit 771082 Radiological Data Summary and Survey Map.*

Maintenance Shop Exterior Lower Walls – (Survey Unit 771068)

The lower 2 meters of the Maintenance Shop Exterior (which includes the Room 190 exterior) were classified as a Class 2 survey unit. The classification was based on the potential for contamination due to maintenance shop and yard area activities. A total of 15 random TSA and RSA measurements were collected. Surface scan surveys of 100% of the lower walls below 2 meters (~ 165 m^2) were also performed.

A small, discrete area of elevated activity was identified on the lower wall of the Maintenance Shop exterior (~ 4900 dpm/100 cm^2). The concrete surface was scarred in this area, which indicates that the contamination likely originated from a forklift or other piece of equipment. The contamination was remediated, and no additional areas of elevated activity were identified during PDS.

Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771068 are presented in Attachment E, *Survey Unit 771068 Radiological Data Summary and Survey Map.*

Maintenance Shop Exterior Upper Walls/Roof – (Survey Unit 771095)

The upper walls and roof of the Maintenance Shop Exterior (which includes the Room 190 exterior) were classified as a Class 3 survey unit. The classification was based on the very low potential for contamination. No airborne contaminating event at the Rocky Flats facility occurred after 1970 when the Maintenance Shop was constructed (i.e., after the Building 771 and Building 776 fires). In addition, there is no permanent means of personnel access to this area. No media samples were collected for this area, because 15

media samples collected during characterization activities did not indicate any elevated activity (in excess of the $DCGL_W$) on the upper walls of the Maintenance Shop exterior.

A total of 15 random TSA and RSA measurements were collected. Surface scan surveys of 12% of the upper walls/roof (~ 91 m^2) were also performed. Two areas of elevated activity (> 100 dpm/100 cm^2) were identified during PDS (on the Building 190 metal roof). Coupon samples were collected at these locations and analyzed for WGP isotopes and Po-210. All activity was identified as Po-210, a naturally-occurring radon progeny. Therefore, all results are less than the $DCGL_W$ for this survey unit.

Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771068 are presented in Attachment F, *Survey Unit 771095, Radiological Data Summary and Survey Map.*

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Based on a thorough review of historical and process knowledge, visual inspections, and personnel interviews, no additional chemical hazard sampling requirements were identified, with the exception of beryllium (refer to Section 4.2).

4.1 Asbestos

Prior to the PDS, asbestos abatement was conducted in the Maintenance Shop. During abatement, friable and non-friable asbestos containing building materials were removed per CDPHE, Regulation No. 8, Part B, "Emission Standards for Asbestos." The asbestos containing materials included insulation steam piping and components and drywall joint compound. Approximately 160 square feet of drywall and joint compound were removed from Rooms 129A through E. Ten linear feet of friable thermal systems insulation (TSI) and 108 pipe fittings were removed from throughout the Maintenance Shop. Vermiculite fill has also been identified in the west exterior wall, which is less than 1% asbestos and therefore does not require abatement. However, due to the presence of this vermiculite fill, wet methods will be required during Maintenance Shop demolition.

Approximately 300 square feet of asbestos containing roof flashing still remains on the Maintenance Shop. Anti-vibration dampening duct material or gasket material is present on the building exterior. In addition, 7 square feet of window caulking (tan glazing with green paint) remains around three windows on the north side of the Maintenance Shop. These asbestos-containing materials (ACM) will be removed in a controlled manner per the requirements of the Demolition Plan.

4.2 Beryllium (Be)

The B771 Maintenance Shop is not and has never been a beryllium-controlled area. However, current beryllium data is not available for the area. Therefore, per the Beryllium Sampling Decision Tree in the PDSP, five (5) biased beryllium smear samples were collected in accordance with the PDSP and the *Beryllium Characterization Procedure,* PRO-536-BCPR, Revision 0, September 9, 1999.

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All beryllium smear sample results were less than the investigative limit of 0.1 $\mu g/100cm^2$. PDS beryllium laboratory sample data and location maps are contained in Attachment G, *Chemical Data Summaries and Sample Maps*.

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based upon the *B771 and B774 Hazards Characterization Report, 771 Closure Project*, Revision 0, dated June 12, 2001, personnel interviews, facility walk-downs, and historical process knowledge (WSRIC/WEMS), the B771 Maintenance Shop did not contain hazardous waste storage units. A visual inspection of the building by 771/774 Environmental Compliance personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling. As a result of these observances, it has been determined that no additional sampling for RCRA/CERCLA constituents is required. Although lead shielding had been machined in this area, any residual lead will not raise the volumetric concentrations of the waste debris to a level above hazardous waste regulatory limits. Analysis of paint throughout the 771/774 complex has revealed lead levels above regulatory limits in only one out of 61 samples taken, and the elevated level was only found in the stack exhaust tunnel. However, this sample was on an orange-colored sealant. Product CFC's (such as freon) had been stored in the B771 Maintenance Shop, but no spills/releases have ever occurred, and these items have been removed.

The concrete generated from the demolition of the B771 Maintenance Shop can be used for onsite recycling in accordance with the Concrete Recycling RSOP.

4.4 Polychlorinated Biphenyls (PCBs)

Based on historical knowledge, personnel interviews, and 771/774 Environmental Compliance Personnel walk-downs, the B771 Maintenance Shop has never used/transferred free flowing/exposed PCB's. At one time the facility may have used PCB ballasts in its fluorescent light fixtures, however, all of these have been removed, and compliantly disposed of, resulting in no impact on demolition activities in the B771 Maintenance Shop. A storage area for sealed PCB ballasts was in use at one time in the B771 Maintenance Shop, but no spills/releases were ever recorded, nor any evidence of release found upon the facility walk-down.

Per the *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, PCBs are present in some applied paints (i.e., on several walls and floors within the B771 and B774 Contamination Areas, and within the 771/776 Tunnel). Because additional paint sampling was not performed in the B771 Maintenance Shop, and because painted surfaces remain in the area, any painted debris generated during demolition that is not recycled on-site will be disposed of a PCB Bulk Product waste.

5 PHYSICAL HAZARDS

Physical hazards associated with the B771 Maintenance Shop consists of those common to standard industrial environments, and include hazards associated with energized

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systems, utilities, and trips and falls. There are no other unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition, therefore, does not present hazards associated with building deterioration.

During demolition, the common wall between the B771 Maintenance Shop and B771 Proper will not be demolished until the PDS is completed verifying the common wall is acceptable for demolition.

Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Building 771 Maintenance Shop, and consequent waste management, is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments B through F) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and
- the laboratory analytical process, relative to accuracy and precision considerations.

The DQA Checklists are provided in the individual survey unit packages (located in the Building 771 Characterization Files).

The Minimum Detectable Activity (MDA) for each PDS instrument was determined *a priori* based on typical parameters (background, efficiency, and count time). A list of radiological field instrumentation and associated sensitivities is presented in Table 1.

Table 1
PDS Radiological Field Instrumentation and Minimum Detectable Activities

Model	Measurement Type	MDA (dpm/100 cm^2)
NE Electra DP6	TSA	48
NE Electra AP6	Scan	300
Eberline SAC-4	Removable (Smears)	10
Bartlett FSM	Scan	300

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building 771 Maintenance Shop will generate a variety of wastes. All wastes can be disposed of as PCB Bulk Product waste or as sanitary waste, following the removal of the asbestos containing materials (ACM) discussed in Section 4.1, and the potentially contaminated drain discussed in Section 3. Concrete can be used as backfill onsite in accordance with the RFCA RSOP for Recycling Concrete.

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, the Building 771 Maintenance Shop is classified as an RFCA Type 3 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and is ready for demolition. The PDS for the Maintenance Shop was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Environmental media beneath and surrounding the facilities will be addressed at a future date in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

A facility walkdown and historical review indicates that no RCRA/CERCLA constituents exist on the Maintenance Shop structural surfaces (refer to Attachment H, Historical Review). All beryllium results obtained during the PDS were below the investigative level of 0.1 $\mu g/100cm^2$. Any potentially PCB-containing fluorescent light ballast and hazardous waste items (e.g., mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury-containing gauges, circuit boards, leaded glass, and lead-acid batteries) were previously removed from the building, therefore, do not impact demolition activities. Asbestos containing roof flashing, anti-vibration dampening duct material or gasket material, and window caulking remaining on the Maintenance Shop exterior will be removed in a controlled manner per the requirements of the Demolition Plan.

Radiological contamination was found in two locations during the PDS (i.e., on the floors and lower wall surface of Room 131, and in one small discrete location on the Maintenance Shop exterior dock area). The areas of contamination were physically removed and PDS follow up surveys verified the contamination was removed. The remaining portion of the Room 131 drain will be managed as radioactive waste during demolition of the slab.

Based upon this PDSR, the Building 771 Maintenance Shop can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. The Room 131 floor drain shall be managed as radioactive waste during demolition of the slab. All remaining under-slab utilities and piping systems shall be managed as radioactive waste, unless additional data collected prior to waste disposition proves otherwise. To ensure that the facility remains free of contamination and that PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

9 REFERENCES

B771 and B774 Hazards Characterization Report for the 771 Closure Project, dated June 12, 2001, Revision 0.

DOE/RFFO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996.

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

DOE Order 414.1A, *Quality Assurance*

EPA, 1994. *The Data Quality Objective Process,* EPA QA/G-4.

K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure,* Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 2, February 25, 2003.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure,* Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.

RFETS, RFCA RSOP for Recycling Concrete, September 28, 1999

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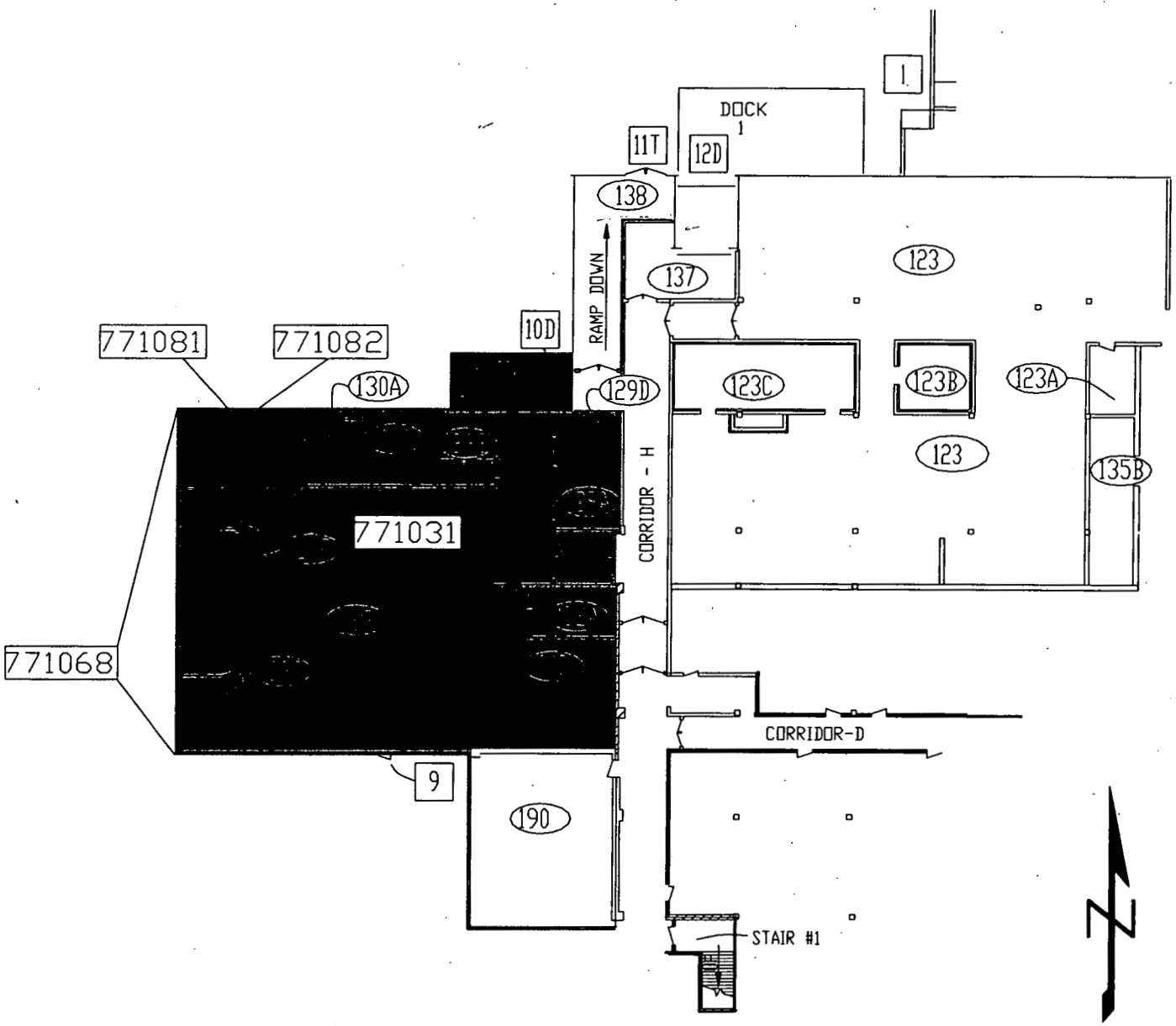
ATTACHMENT A

Survey Unit Overview Map

Survey Area AD

B771 Maintenance Shop



Class 1 Survey Unit

Class 2 Survey Unit

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ATTACHMENT B

Survey Unit 771031
Radiological Data Summary and Survey Map

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Survey Unit 771031 Data Summary

Total Surface Activity Measurements

15	15
Number Required	Number Obtained

MIN	-6.1	dpm/100 cm^2
MAX	18.9	dpm/100 cm^2
MEAN	4.4	dpm/100 cm^2
STD DEV	8.5	dpm/100 cm^2
TRANSURANIC DCGL$_W$	100	dpm/100 cm^2

Removable Activity Measurements

15	15
Number Required	Number Obtained

MIN	-1.5	dpm/100 cm^2
MAX	5.5	dpm/100 cm^2
MEAN	1.5	dpm/100 cm^2
STD DEV	1.7	dpm/100 cm^2
TRANSURANIC DCGL$_W$	20	dpm/100 cm^2

Media Sample Activity

Media Samples	15	15
	Number Required	Number Obtained

Total Transuranic Results

MIN	4.5	dpm/100 cm^2
MAX	78.2	dpm/100 cm^2
MEAN	33.8	dpm/100 cm^2
STD DEV	20.7	dpm/100 cm^2

Survey Unit 771031 Total Surface Contamination Results

Total Surface Activity Survey					Quality Control Survey			
Meter Model:	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)
Instrument #:	1243	N/A	N/A	2.6	295	N/A	N/A	3.0
Cal. Due Date:	5/15/03	N/A	N/A		5/15/03	N/A	N/A	
Efficiency (c/d):	0.216	N/A	N/A		0.223	N/A	N/A	
	Total Surface Activity Measurements				**Quality Control Measurements**			
Sample Location Number	Serial #	Date	(cpm)	(dpm/100 cm^2)	Serial #	Date	(cpm)	(dpm/100 cm^2)
1	1243	03/13/03	5.3	12.4				
2	1243	03/13/03	6.0	15.6				
3	1243	03/13/03	2.0	-2.9				
4	1243	03/13/03	2.7	0.4				
5	1243	03/13/03	1.3	-6.1	295	05/15/03	1.3	-7.6
6	1243	03/13/03	5.3	12.4	295	05/15/03	4.7	7.6
7	1243	03/13/03	2.0	-2.9				
8	1243	03/13/03	4.7	9.6				
9	1243	03/13/03	4.7	9.6				
10	1243	03/13/03	2.0	-2.9				
11	1243	03/13/03	6.7	18.9				
12	1243	03/13/03	4.7	9.6				
13	1243	03/13/03	2.7	0.4				
14	1243	03/13/03	1.3	-6.1				
15	1243	03/13/03	2.0	-2.9				
			MIN	**-6.1**				
			MAX	**18.9**				
			MEAN	**4.4**				
			SD	**8.5**				
			Transuranic $DCGL_W$	**100**				

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Survey Unit 771031 RSA Contamination Results

Smear Location Number	Smear Results				
	Serial Number	Date Counted	Gross (counts)	Gross (cpm)	(dpm/100 cm^2)
1	1409	3/13/03	0.0	0.0	-0.6
2	829	3/13/03	2.0	1.0	1.5
3	1487	3/13/03	1.0	0.5	0.9
4	1409	3/13/03	1.0	0.5	0.0
5	829	3/13/03	2.0	1.0	2.4
6	1487	3/13/03	1.0	0.5	0.0
7	1409	3/13/03	2.0	1.0	2.4
8	829	3/13/03	2.0	1.0	1.5
9	1487	3/13/03	2.0	1.0	2.4
10	1409	3/13/03	0.0	0.0	-1.5
11	829	3/13/03	4.0	2.0	5.5
12	1487	3/13/03	2.0	1.0	1.5
13	1409	3/13/03	1.0	0.5	0.9
14	829	3/13/03	3.0	1.5	3.0
15	1487	3/13/03	2.0	1.0	2.4
				MIN	**-1.5**
				MAX	**5.5**
				MEAN	**1.5**
				SD	**1.7**
				Transuranic $DCGL_W$	**20**

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Survey Unit 771031 Media Samples

Location Description	Sample Location #	Sample ID RIN (03S0161)	Mass (g)	pCi/g [1]	TBD-00076 Total α/Am241 [2]	dpm/100cm²
Rm 129A Ceiling SW Corner	1	03S0161-001	7.4	0.139	8.07	18
Rm 129A Bottom of East Wall	2	03S0161-002	11.7	0.139	8.07	29
Rm 132 Center Ceiling	3	03S0161-003	5.5	0.139	8.07	14
Rm 132 SE corner of floor	4	03S0161-004	19	0.139	8.07	47
Rm 132 North Wall Upper East Corner	5	03S0161-005	16.3	0.139	8.07	41
Rm 130 South Wall Lower East Corner	6	03S0161-006	19.3	0.139	8.07	48
Rm 129 Ceiling East End Center	7	03S0161-007	9.6	0.139	8.07	24
Rm 129 Ceiling Center	8	03S0161-008	5.6	0.139	8.07	14
Rm 129 Ceiling Center	9	03S0161-009	6	0.139	8.07	15
Rm 129 Ceiling South East Corner	10	03S0161-010	1.8	0.139	8.07	4
Rm 129 North Wall East of door going into Rm 129F	11	03S0161-011	9.9	0.139	8.07	25
Rm 129 Floor Center West End	12	03S0161-012	25.2	0.139	8.07	63
Rm 129 Floor Center East	13	03S0161-013	31.4	0.139	8.07	78
Rm 129 East Wall Upper North Corner	14	03S0161-014	20.8	0.139	8.07	52
Rm 129 South Wall Upper West Corner	15	03S0161-015	13.8	0.139	8.07	34
		Total Mass(g)	203.3			
		Total Activity (pCi)	28.26			

MIN	**4.5**
MAX	**78.2**
MEAN	**33.8**
SD	**20.7**
$DCGL_W$ =	**100**

(1) Represents average activity of all samples.

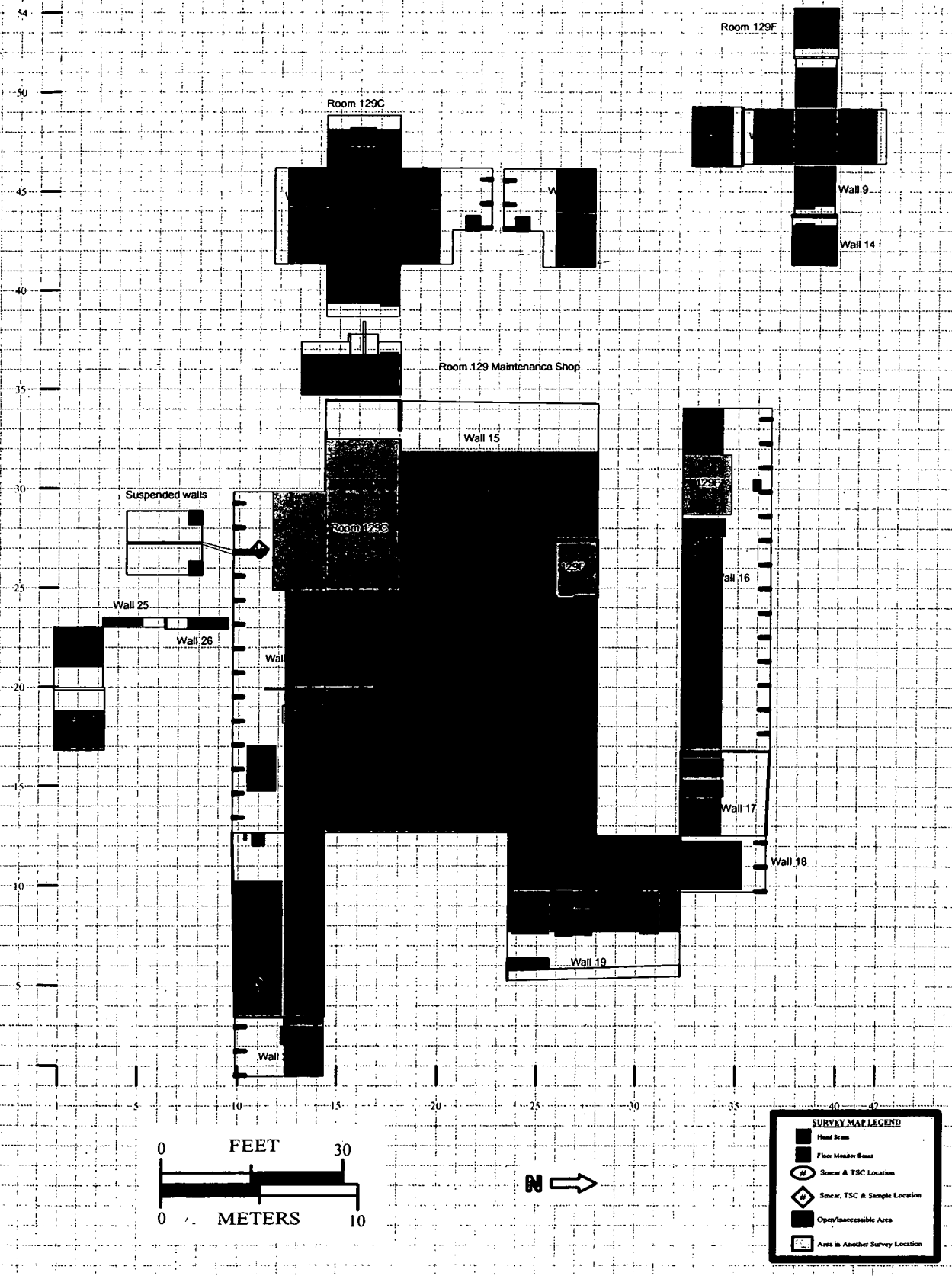
(2) Based on 34 year since strike date WGPu (Radiological Engineering TBD-00076, "Activities for Isotopes of Concern in Weapsons Plutonium as a Function of Time", 6/19/96.

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AD **Survey Unit:** 771031 **Classification:** 2
Building: 771
Survey Unit Description: 771 Maintenance Shop Rooms 129, 129A-F, 131, 132A

Total Floor Area: 375 sq. m **Total Area:** 1957 sq. m **Grid Size:** 11m x 11m

SURVEY UNIT 771031 - MAP 1 OF 3



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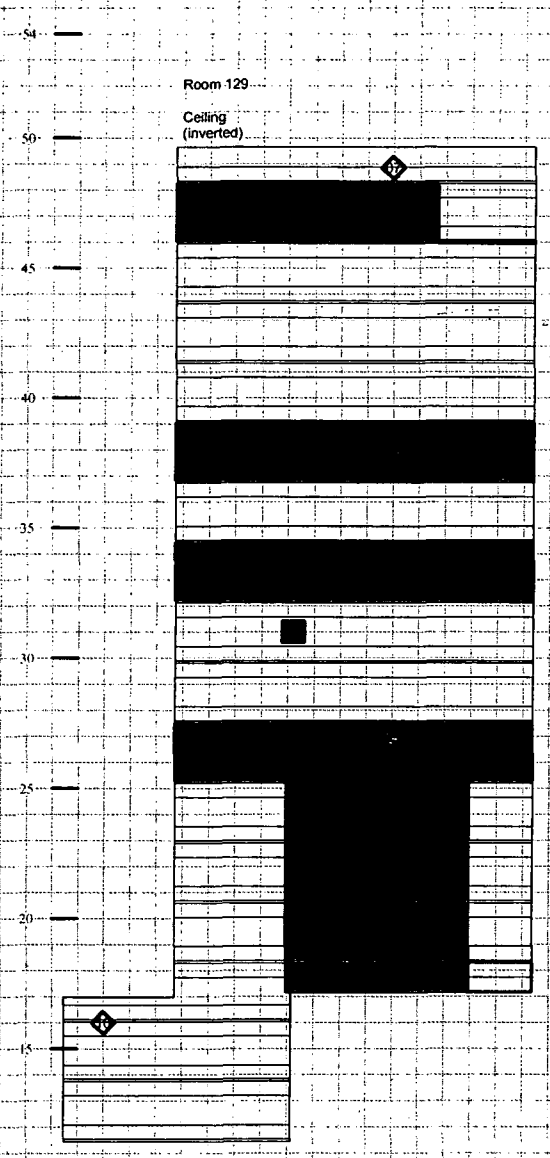
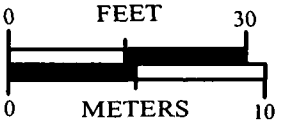
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AD **Survey Unit: 771031** **Classification: 2**
Building: 771
Survey Unit Description: 771 Maintence Shop Rooms 129, 129A-F, 130, 132,132A

Total Floor Area: 375 sq. m **Total Area: 1957 sq. m** **Grid Size: 11m x 11m**

SURVEY UNIT 771031 - MAP 2 OF 3





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SURVEY MAP LEGEND
- Head Scans
- Smear & TSC Location
- Smear, TSC & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Location

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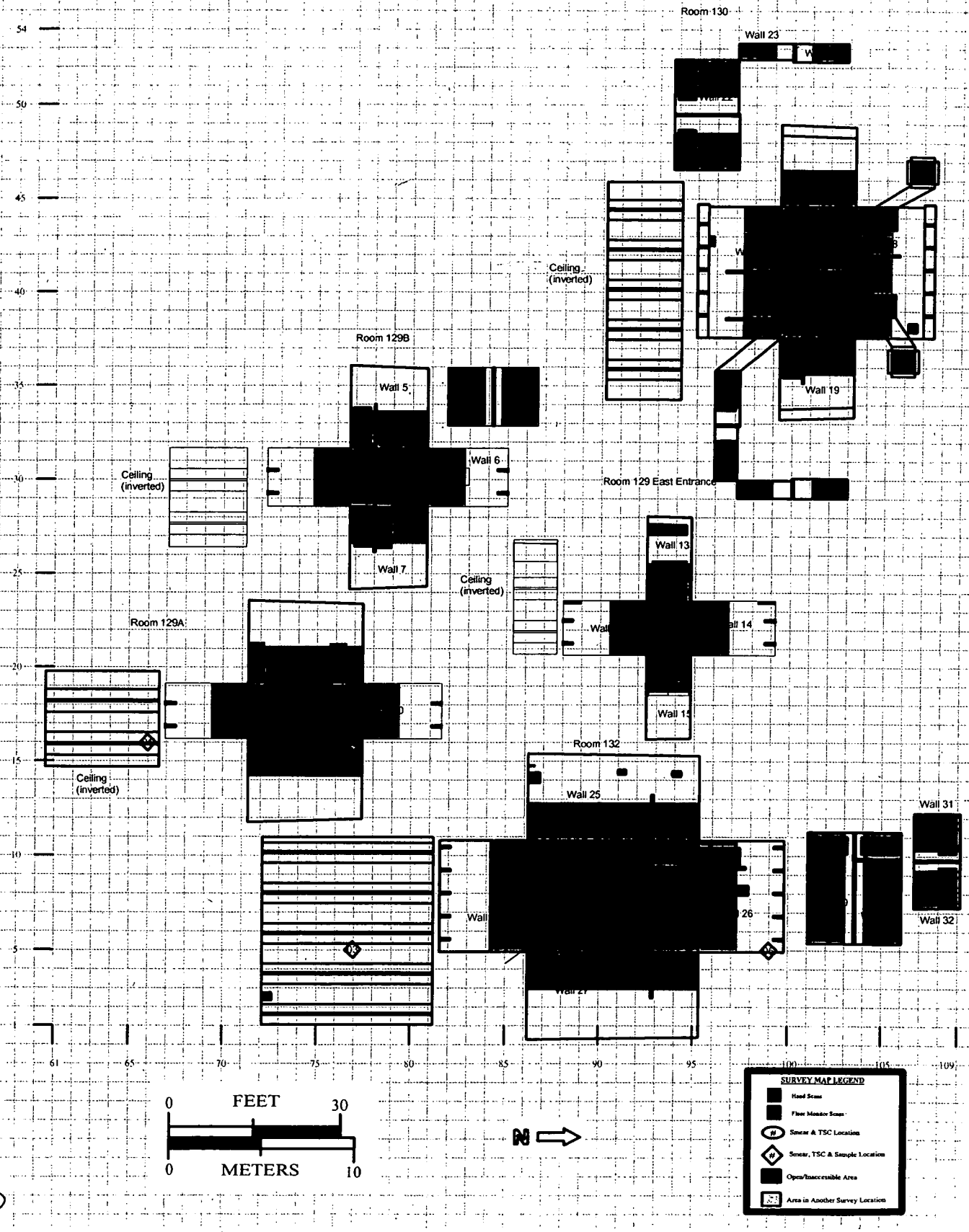
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AD **Survey Unit: 771031** **Classification: 2**
Building: 771
Survey Unit Description: 771 Maintenance Shop Rooms 129, 129A-F, 130, 132, 132A

Total Floor Area: 375 sq. m **Total Area: 1957 sq. m** **Grid Size: 11m x 11m**

SURVEY UNIT 771031 - MAP 3 OF 3



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ATTACHMENT C

Survey Unit 771081
Radiological Data Summary and Survey Map

Survey Unit 771081 Data Summary

Total Surface Activity Measurements

	15	15	
	Number Required	Number Obtained	
MIN	18.0		dpm/100 cm^2
MAX	72.8		dpm/100 cm^2
MEAN	47.8		dpm/100 cm^2
STD DEV	15.9		dpm/100 cm^2
TRANSURANIC DCGL$_W$	100		dpm/100 cm^2

Removable Activity Measurements

	15	15	
	Number Required	Number Obtained	
MIN	-1.8		dpm/100 cm^2
MAX	4.2		dpm/100 cm^2
MEAN	0.0		dpm/100 cm^2
STD DEV	2.0		dpm/100 cm^2
TRANSURANIC DCGL$_W$	20		dpm/100 cm^2

Media Sample Activity

Media Samples	N/A	N/A
	Number Required	Number Obtained

MIN	N/A	dpm/100 cm^2
MAX	N/A	dpm/100 cm^2
MEAN	N/A	dpm/100 cm^2
STD DEV	N/A	dpm/100 cm^2

Survey Unit 771081 Total Surface Activity Results

Total Surface Activity Survey					Quality Control Survey			
Meter Model:	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)
Instrument #:	1262	N/A	N/A	7.1	2382	N/A	N/A	5.0
Cal. Due Date:	11/2/03	N/A	N/A		11/2/03	N/A	N/A	
Efficiency (c/d):	0.219	N/A	N/A		0.215	N/A	N/A	
	Total Surface Activity Measurements				Quality Control Measurements			
Sample Location Number	Serial #	Date	(cpm)	(dpm/100 cm^2)	Serial #	Date	(cpm)	(dpm/100 cm^2)
1	1262	05/21/03	21.0	63.6				
2	1262	05/21/03	20.0	59.1				
3	1262	05/21/03	23.0	72.8	2382	05/21/03	18.0	60.5
4	1262	05/21/03	20.0	59.1				
5	1262	05/21/03	17.0	45.4				
6	1262	05/21/03	17.0	45.4				
7	1262	05/21/03	18.0	49.9				
8	1262	05/21/03	14.0	31.7				
9	1262	05/21/03	23.0	72.8				
10	1262	05/21/03	16.0	40.8				
11	1262	05/21/03	13.0	27.1				
12	1262	05/21/03	18.0	49.9	2382	05/21/03	19.0	65.1
13	1262	05/21/03	11.0	18.0				
14	1262	05/21/03	15.0	36.2				
15	1262	05/21/03	17.0	45.4				
			MIN	**18.0**				
			MAX	**72.8**				
			MEAN	**47.8**				
			SD	**15.9**				
			Transuranic DCGL$_W$	**100**				

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Survey Unit 771081 Removable Surface Activity Results

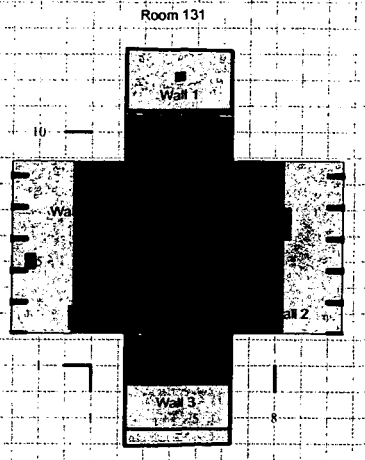
Smear Location Number	Smear Results			
	Serial Number	Date Counted	Gross (cpm)	(dpm/100 cm^2)
1	1489	5/21/03	0.0	-1.8
2	1489	5/21/03	1.0	1.2
3	1489	5/21/03	1.5	2.7
4	1489	5/21/03	0.0	-1.8
5	1489	5/21/03	0.0	-1.8
6	1489	5/21/03	0.0	-1.8
7	1489	5/21/03	0.0	-1.8
8	1489	5/21/03	0.5	-0.3
9	1489	5/21/03	2.0	4.2
10	1489	5/21/03	0.0	-1.8
11	1489	5/21/03	1.0	1.2
12	1489	5/21/03	1.0	1.2
13	1489	5/21/03	1.0	1.2
14	1489	5/21/03	1.0	1.2
15	1489	5/21/03	0.0	-1.8
			MIN	**-1.8**
			MAX	**4.2**
			MEAN	**0.0**
			SD	**2.0**
			Transuranic DCGL$_W$	**20**

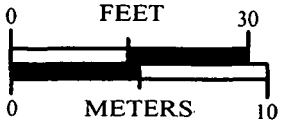
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AD **Survey Unit: 771081** **Classification: 1**
Building: 771
Survey Unit Description: Maintenance Shop Room 131 walls <2m and floor

Total Floor Area: 27 sq. m **Total Area: 67 sq. m** **Grid Size: 2m x 2m**

SURVEY UNIT 771081 - MAP 1 OF 1





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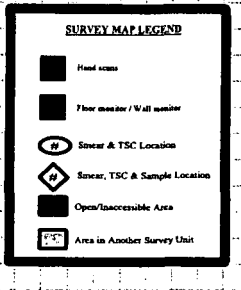

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ATTACHMENT D

Survey Unit 771082
Radiological Data Summary and Survey Map

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Survey Unit 771082 Data Summary

Total Surface Activity Measurements

	15	15	
	Number Required	Number Obtained	
MIN	-0.9		dpm/100 cm^2
MAX	26.0		dpm/100 cm^2
MEAN	9.6		dpm/100 cm^2
STD DEV	7.9		dpm/100 cm^2
TRANSURANIC DCGL$_W$	100		dpm/100 cm^2

Removable Activity Measurements

	15	15	
	Number Required	Number Obtained	
MIN	0.9		dpm/100 cm^2
MAX	3.9		dpm/100 cm^2
MEAN	1.8		dpm/100 cm^2
STD DEV	1.0		dpm/100 cm^2
TRANSURANIC DCGL$_W$	20		dpm/100 cm^2

Media Sample Activity

Media Samples	15	15	
	Number Required	Number Obtained	
MIN	44.1		dpm/100 cm^2
MAX	44.1		dpm/100 cm^2
MEAN	44.1		dpm/100 cm^2
STD DEV	0.0		dpm/100 cm^2

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Survey Unit 771082 Total Surface Activity Results

Total Surface Activity Survey					Quality Control Survey			
Meter Model:	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)
Instrument #:	295	N/A	N/A	2.2	1384	N/A	N/A	2.7
Cal. Due Date:	5/15/03	N/A	N/A		4/29/03	N/A	N/A	
Efficiency (c/d):	0.223	N/A	N/A		0.213	N/A	N/A	
Total Surface Activity Measurements					**Quality Control Measurements**			
Sample Location Number	Serial #	Date	(cpm)	(dpm/100 cm^2)	Serial #	Date	(cpm)	(dpm/100 cm^2)
1	295	03/25/03	7.3	22.9	1384	03/25/03	6.0	15.7
2	295	03/25/03	6.0	17.0				
3	295	03/25/03	3.3	4.9				
4	295	03/25/03	2.7	2.2				
5	295	03/25/03	5.3	13.9				
6	295	03/25/03	4.7	11.2				
7	295	03/25/03	3.3	4.9				
8	295	03/25/03	8.0	26.0	1384	03/25/03	5.3	12.4
9	295	03/25/03	3.3	4.9				
10	295	03/25/03	5.3	13.9				
11	295	03/25/03	3.3	4.9				
12	295	03/25/03	3.3	4.9				
13	295	03/25/03	2.0	-0.9				
14	295	03/25/03	2.7	2.2				
15	295	03/25/03	4.7	11.2				
			MIN	**-0.9**				
			MAX	**26.0**				
			MEAN	**9.6**				
			SD	**7.9**				
			Transuranic $DCGL_W$	**100**				

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Survey Unit 771082 Removable Surface Activity Results

Smear Location Number	Smear Results			
	Serial Number	Date Counted	Gross (cpm)	(dpm/100 cm^2)
1	815	3/25/03	1.0	2.7
2	1407	3/25/03	0.5	0.9
3	815	3/25/03	0.5	1.2
4	1407	3/25/03	1.5	3.9
5	815	3/25/03	0.5	1.2
6	1407	3/25/03	0.5	0.9
7	815	3/25/03	0.5	1.2
8	1407	3/25/03	1.0	2.4
9	815	3/25/03	0.5	1.2
10	1407	3/25/03	1.0	2.4
11	815	3/25/03	1.0	2.7
12	1407	3/25/03	0.5	0.9
13	815	3/25/03	0.5	1.2
14	1407	3/25/03	0.5	0.9
15	815	3/25/03	1.0	2.7
			MIN	**0.9**
			MAX	**3.9**
			MEAN	**1.8**
			SD	**1.0**
			Transuranic $DCGL_W$	**20**

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Survey Unit 771082 Media Samples

Location Description	Sample Location #	Sample ID RIN (03S0163)	Mass (g) [1]	pCi/g [2]	TBD-00076 Total α/Am241 [3]	dpm/100cm²
Room 131 Ceiling	1	001.001	185.2	0.0133	8.07	44
Room 131 Ceiling	2	002.001	185.2	0.0133	8.07	44
Room 131 South Wall	3	003.001	185.2	0.0133	8.07	44
Room 131 South Wall	4	004.001	185.2	0.0133	8.07	44
Room 131 North Wall	5	005.001	185.2	0.0133	8.07	44
Room 131 North Wall	6	006.001	185.2	0.0133	8.07	44
Room 131 North Wall	7	007.001	185.2	0.0133	8.07	44
Room 131 South Wall	8	008.001	185.2	0.0133	8.07	44
Room 131 South Wall	9	009.001	185.2	0.0133	8.07	44
Room 131 Ceiling	10	010.001	185.2	0.0133	8.07	44
Room 131 Ceiling	11	011.001	185.2	0.0133	8.07	44
Room 131 Ceiling	12	012.001	185.2	0.0133	8.07	44
Room 131 Ceiling	13	013.001	185.2	0.0133	8.07	44
Room 131 Ceiling	14	014.001	185.2	0.0133	8.07	44
Room 131 Ceiling	15	015.001	185.2	0.0133	8.07	44
		Total Mass(g)	185.2			
		Total Activity (pCi)	2.46			

MIN	**44**
MAX	**44**
MEAN	**44**
SD	**0.0**
$DCGL_W$ =	**100**

(1) Represents total mass of all samples. Individual sample weights not available.

(2) Represents average activity of all samples.

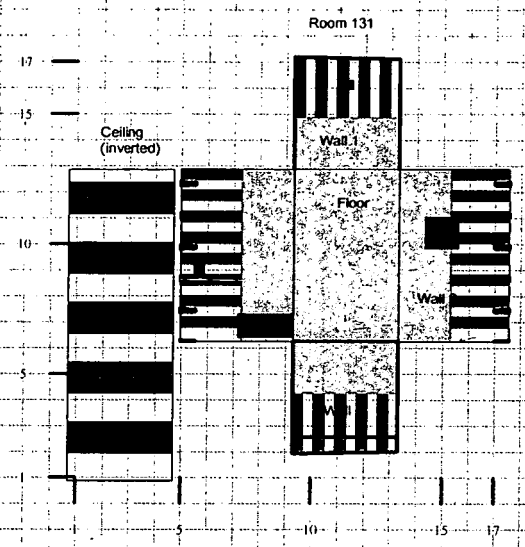
(3) Based on 34 year since strike date WGPu (Radiological Engineering TBD-00076, "Activities for Isotopes of Concern in Weapsons Plutonium as a Function of Time", 6/19/96.

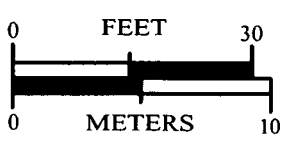
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AD **Survey Unit: 771082** **Classification: 2**
Building: 771
Survey Unit Description: Room 131 Maintenance Shop walls >2m and ceiling

Total Floor Area: NA sq. m **Total Area: 96 sq. m** **Grid Size: 2m x 2m**

SURVEY UNIT 771082 - MAP 1 OF 1





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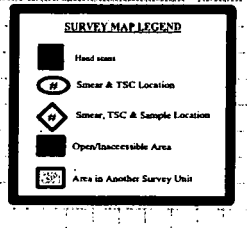

ATTACHMENT E

Survey Unit 771068
Radiological Data Summary and Survey Map

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Survey Unit 771068 Data Summary

Total Surface Activity Measurements

	15	15	
	Number Required	Number Obtained	
MIN	-2.7		dpm/100 cm^2
MAX	43.9		dpm/100 cm^2
MEAN	22.4		dpm/100 cm^2
STD DEV	13.4		dpm/100 cm^2
TRANSURANIC DCGL$_W$	100		dpm/100 cm^2

Removable Activity Measurements

	15	15	
	Number Required	Number Obtained	
MIN	1.2		dpm/100 cm^2
MAX	10.3		dpm/100 cm^2
MEAN	5.1		dpm/100 cm^2
STD DEV	3.1		dpm/100 cm^2
TRANSURANIC DCGL$_W$	20		dpm/100 cm^2

Media Sample Activity

Media Samples	N/A	N/A	
	Number Required	Number Obtained	
MIN	N/A		dpm/100 cm^2
MAX	N/A		dpm/100 cm^2
MEAN	N/A		dpm/100 cm^2
STD DEV	N/A		dpm/100 cm^2

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Survey Unit 771068 Total Surface Contamination Results

Total Surface Activity Survey					Quality Control Survey			
Meter Model:	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)
Instrument #:	2382	N/A	N/A	4.6	2172	N/A	N/A	4.5
Cal. Due Date:	11/2/03	N/A	N/A		11/12/03	N/A	N/A	
Efficiency (c/d):	0.215	N/A	N/A		0.218	N/A	N/A	

Total Surface Activity Measurements					Quality Control Measurements			
Sample Location Number	Serial #	Date	(cpm)	(dpm/100 cm^2)	Serial #	Date	(cpm)	(dpm/100 cm^2)
1	2382	05/30/03	6.0	6.6				
2	2382	05/30/03	9.3	22.0				
3	2382	05/30/03	4.0	-2.7				
4	2382	05/30/03	11.3	31.3				
5	2382	05/30/03	11.3	31.3				
6	2382	05/30/03	10.0	25.3				
7	2382	05/30/03	6.7	9.9				
8	2382	05/30/03	10.7	28.5	1367	11/13/02	8.0	16.1
9	2382	05/30/03	9.3	22.0				
10	2382	05/30/03	10.7	28.5				
11	2382	05/30/03	6.7	9.9				
12	2382	05/30/03	12.7	37.8	1367	11/13/02	9.0	20.6
13	2382	05/30/03	14.0	43.9				
14	2382	05/30/03	6.0	6.6				
15	2382	05/30/03	12.0	34.6				
			MIN	**-2.7**				
			MAX	**43.9**				
			MEAN	**22.4**				
			SD	**13.4**				
			Transuranic DCGL$_W$	**100**				

Survey Unit 771068 Smear Results

Smear Location Number	Smear Results				
	Serial Number	Date Counted	Gross (counts)	Gross (cpm)	(dpm/100 cm^2)
1	1178	5/30/03	2.0	1.0	1.2
2	1178	5/30/03	4.0	2.0	4.2
3	1178	5/30/03	4.0	2.0	4.2
4	1178	5/30/03	6.0	3.0	7.3
5	1178	5/30/03	4.0	2.0	4.2
6	1178	5/30/03	6.0	3.0	7.3
7	1178	5/30/03	4.0	2.0	4.2
8	1178	5/30/03	2.0	1.0	1.2
9	1178	5/30/03	6.0	3.0	7.3
10	1178	5/30/03	2.0	1.0	1.2
11	1178	5/30/03	8.0	4.0	10.3
12	1178	5/30/03	2.0	1.0	1.2
13	1178	5/30/03	6.0	3.0	7.3
14	1178	5/30/03	8.0	4.0	10.3
15	1178	5/30/03	4.0	2.0	4.2
				MIN	**1.2**
				MAX	**10.3**
				MEAN	**5.1**
				SD	**3.1**
				Transuranic $DCGL_W$	**20**

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Survey Unit 771068 Media Samples

Location Description	Sample Location #	Sample ID RIN (03S048-016)	Mass (g) [1]	pCi/g [2]	MDA pCi/gm	TBD-00076 Total α/Am241 [3]	dpm/100cm²
East side of roll-up door on North side of bldg.	1	03S0048-001	87.8	0	0.138	**8.07**	0
Lower skirt of loading dock on North side of bldg.	2	03S0048-002	87.8	0	0.138	**8.07**	0
Lower skirt of loading dock on North side of bldg.	3	03S0048-003	87.8	0	0.138	**8.07**	0
South end of Wall 1	4	03S0048-004	87.8	0	0.138	**8.07**	0
North end of Wall 1	5	03S0048-005	87.8	0	0.138	**8.07**	0
West side of entrance door on North end of bldg.	6	03S0048-006	87.8	0	0.138	**8.07**	0
East end of Wall 5	7	03S0048-007	87.8	0	0.138	**8.07**	0
Center of Wall 5	8	03S0048-008	87.8	0	0.138	**8.07**	0
West end of Wall 5	9	03S0048-009	87.8	0	0.138	**8.07**	0
North end of Wall 6	10	03S0048-010	87.8	0	0.138	**8.07**	0
Center of Wall 6	11	03S0048-011	87.8	0	0.138	**8.07**	0
Center of Wall 6	12	03S0048-012	87.8	0	0.138	**8.07**	0
South end of Wall 6	13	03S0048-013	87.8	0	0.138	**8.07**	0
West end of Wall 7	14	03S0048-014	87.8	0	0.138	**8.07**	0
East end of Wall 7	15	03S0048-015	87.8	0	0.138	**8.07**	0
		Total Mass(g)	87.8				
		Total Activity (pCi)	0.00				

MIN	**0.0**
MAX	**0.0**
MEAN	**0.0**
SD	**0.0**
$DCGL_W$ =	**100**

(1) Represents total mass of all samples. Individual sample weights not available.

(2) Represents average activity of all samples.

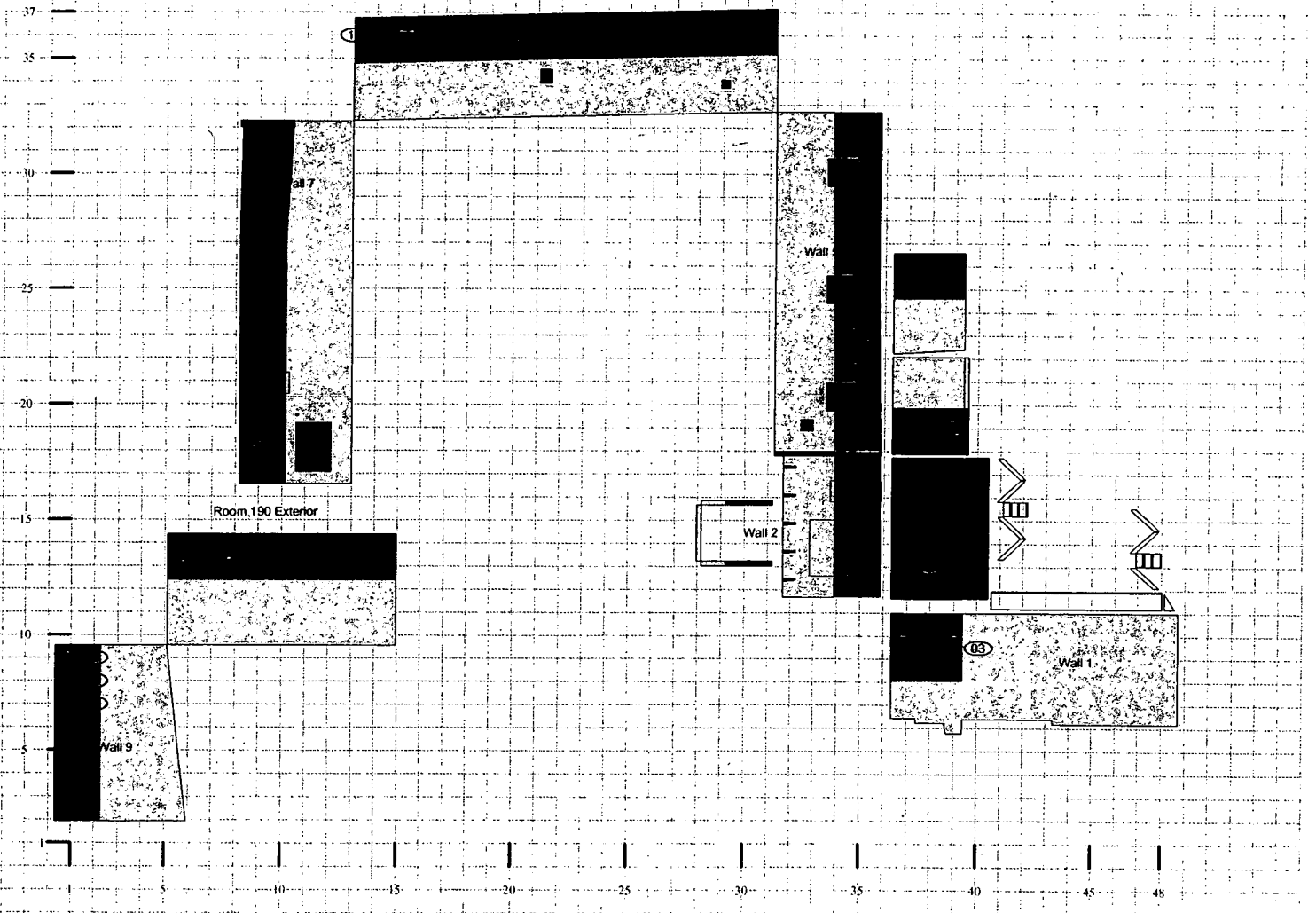
(3) Based on 34 year since strike date WGPu (Radiological Engineering TBD-00076, "Activities for Isotopes of Concern in Weapsons Plutonium as a Function of Time", 6/19/96.

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL **Survey Unit: 771068** **Classification: 2**
Building: 771
Survey Unit Description: 771 Maintenance Shop Exterior

Total Floor Area: NA **Total Area: 185 sq. m** **Grid Size: N/A**

SURVEY UNIT 771068 - MAP 1 OF 1



0 FEET 30
0 METERS 10

N

SURVEY MAP LEGEND
Smear & TSC Location
Scanned Areas
Open/Inaccessible Area
Non-impacted Area

ATTACHMENT F

Survey Unit 771095
Radiological Data Summary and Survey Map

HH

Survey Unit 771095 Data Summary

Total Surface Activity Measurements

	15	15	
	Number Required	Number Obtained	
MIN	-12.5		dpm/100 cm^2
MAX	88.4		dpm/100 cm^2
MEAN	58.0		dpm/100 cm^2
STD DEV	31.5		dpm/100 cm^2
TRANSURANIC DCGL$_W$	100		dpm/100 cm^2

Removable Activity Measurements

	15	15	
	Number Required	Number Obtained	
MIN	-1.5		dpm/100 cm^2
MAX	7.6		dpm/100 cm^2
MEAN	1.3		dpm/100 cm^2
STD DEV	3.1		dpm/100 cm^2
TRANSURANIC DCGL$_W$	20		dpm/100 cm^2

Media Sample Activity

Media Samples	N/A	N/A
	Number Required	Number Obtained

Total Uranium Results

MIN	N/A	dpm/100 cm^2
MAX	N/A	dpm/100 cm^2
MEAN	N/A	dpm/100 cm^2
STD DEV	N/A	dpm/100 cm^2

Total Transuranic Results

MIN	N/A	dpm/100 cm^2
MAX	N/A	dpm/100 cm^2
MEAN	N/A	dpm/100 cm^2
STD DEV	N/A	dpm/100 cm^2

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Survey Unit 771095 Total Surface Contamination Results

Total Surface Activity Survey					Quality Control Survey			
Meter Model:	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)	NE Electra w/ DP6 Probe			Local Area Bkgd (cpm)
Instrument #:	2383	N/A	N/A	2.7	1416	N/A	N/A	5.0
Cal. Due Date:	12/31/03	N/A	N/A	[redacted]	9/30/03	N/A	N/A	[redacted]
Efficiency (c/d):	0.22	N/A	N/A		0.220	N/A	N/A	
	Total Surface Activity Measurements				Quality Control Measurements			
Sample Location Number	Serial #	Date	(cpm)	(dpm/100 cm^2)	Serial #	Date	(cpm)	(dpm/100 cm^2)
1 (1)	1428	06/12/03	0.0	-12.5	[redacted]			
2	1428	06/12/03	16.0	60.9				
3	1428	06/12/03	15.3	57.7				
4	1428	06/12/03	17.1	66.0				
5	1428	06/12/03	19.3	76.1				
6	1428	06/12/03	10.3	34.8				
7	1428	06/12/03	18.0	70.1	1416	06/12/03	24.0	86.4
8	1428	06/12/03	18.7	73.3	[redacted]			
9	1428	06/12/03	17.0	65.5				
10	1428	06/12/03	17.3	66.9				
11	1428	06/12/03	21.4	85.7				
12	1428	06/12/03	22.0	88.4				
13	1428	06/12/03	16.7	64.1	1416	06/12/03	13.3	37.7
14 (1)	1428	06/12/03	0.0	-12.5	[redacted]			
15	1428	06/12/03	21.3	85.2				
[redacted]			MIN	-12.5				
			MAX	88.4				
			MEAN	58.0				
			SD	31.5				
			Transuranic $DCGL_W$	100				

(1) Metal coupon samples were collected at these locations to verify the presence of Po-210 and the absence of WGP isotopes. No WGP isotopes were identified. This data is located in the survey package.

Survey Unit 771095 Smear Results

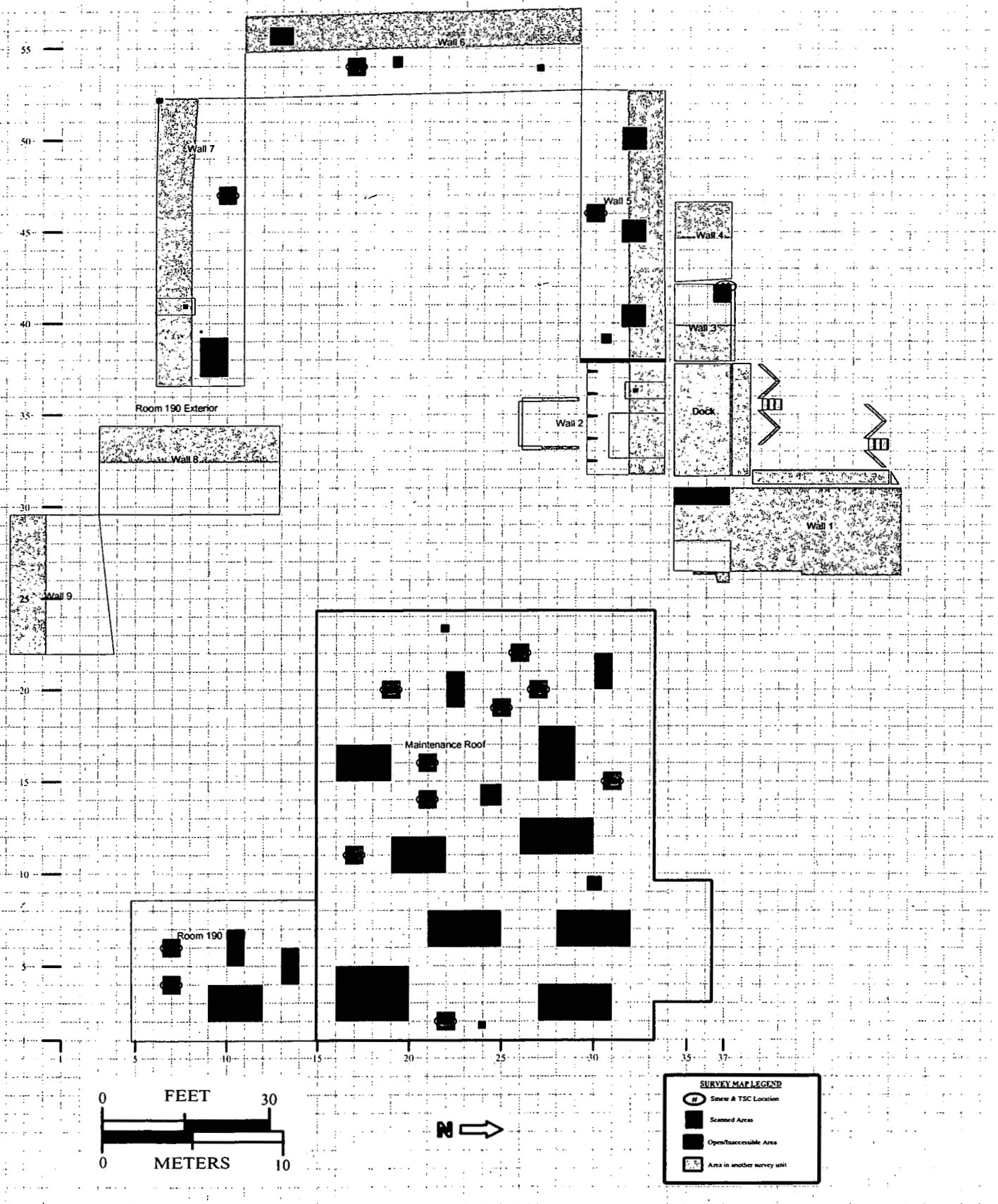
Smear Location Number	Smear Results				
	Serial Number	Date Counted	Gross (counts)	Gross (cpm)	(dpm/100 cm^2)
1	1263	6/12/03	0.0	0.0	-1.5
2	1263	6/12/03	3.0	1.5	3.0
3	1263	6/12/03	3.0	1.5	3.0
4	1263	6/12/03	0.0	0.0	-1.5
5	1263	6/12/03	0.0	0.0	-1.5
6	1263	6/12/03	6.0	3.0	7.6
7	1263	6/12/03	0.0	0.0	-1.5
8	1263	6/12/03	2.0	1.0	1.5
9	1263	6/12/03	0.0	0.0	-1.5
10	1263	6/12/03	5.0	2.5	6.1
11	1263	6/12/03	1.0	0.5	0.0
12	1263	6/12/03	4.0	2.0	4.5
13	1263	6/12/03	3.0	1.5	3.0
14	1263	6/12/03	1.0	0.5	0.0
15	1263	6/12/03	0.0	0.0	-1.5
				MIN	**-1.5**
				MAX	**7.6**
				MEAN	**1.3**
				SD	**3.1**
				Transuranic $DCGL_W$	**20**

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL **Survey Unit: 771095** **Classification: 3**
Building: 771
Survey Unit Description: 771 Maintenance Shop Exterior

Total Floor Area: NA **Total Area: 717 sq. m** **Grid Size: N/A**

SURVEY UNIT 771095 - MAP 1 OF 1



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ATTACHMENT G

Chemical Data Summaries and Sample Maps

Industrial Hygiene Information System
Surface Sample Report

IHISR_SURFACE_SAMPLE
Date: 06/12/2003

RIN: 03Z1736

Sample Number/Type:	771-05222003-318-101	WIPE	Hygienist: ROBERT WADE
Location Info:	ON FLOOR NORTH EAST SIDE BY ROOM 129F		
Room No:	129		
		Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)
		Concentration:	< 0.1000 _ UG/100CM2

Sample Number/Type:	771-05222003-318-102	WIPE	Hygienist: ROBERT WADE
Location Info:	ON FLOOR NORTH OF ROOM 129C		
Room No:	129		
		Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)
		Concentration:	< 0.1000 _ UG/100CM2

Sample Number/Type:	771-05222003-318-103	WIPE	Hygienist: ROBERT WADE
Location Info:	ON FLOOR WEST OF ROOM 129C		
Room No:	129		
		Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)
		Concentration:	< 0.1000 _ UG/100CM2

Sample Number/Type:	771-05222003-318-104	WIPE	Hygienist: ROBERT WADE
Location Info:	ON FLOOR SOUTH WEST CORNER OF ROOM 129		
Room No:	129		
		Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)
		Concentration:	< 0.1000 _ UG/100CM2

Sample Number/Type:	771-05222003-318-105	WIPE	Hygienist: ROBERT WADE
Location Info:	ON FLOOR NORTH WEST CORNER OF ROOM 129		
Room No:	129		
		Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)
		Concentration:	< 0.1000 _ UG/100CM2

Sample Number/Type:	771-05222003-318-106	BLANK	Hygienist: ROBERT WADE
Location Info:			
Room No:			
		Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)
		Concentration:	< 0.1000 _ UG

[redacted]

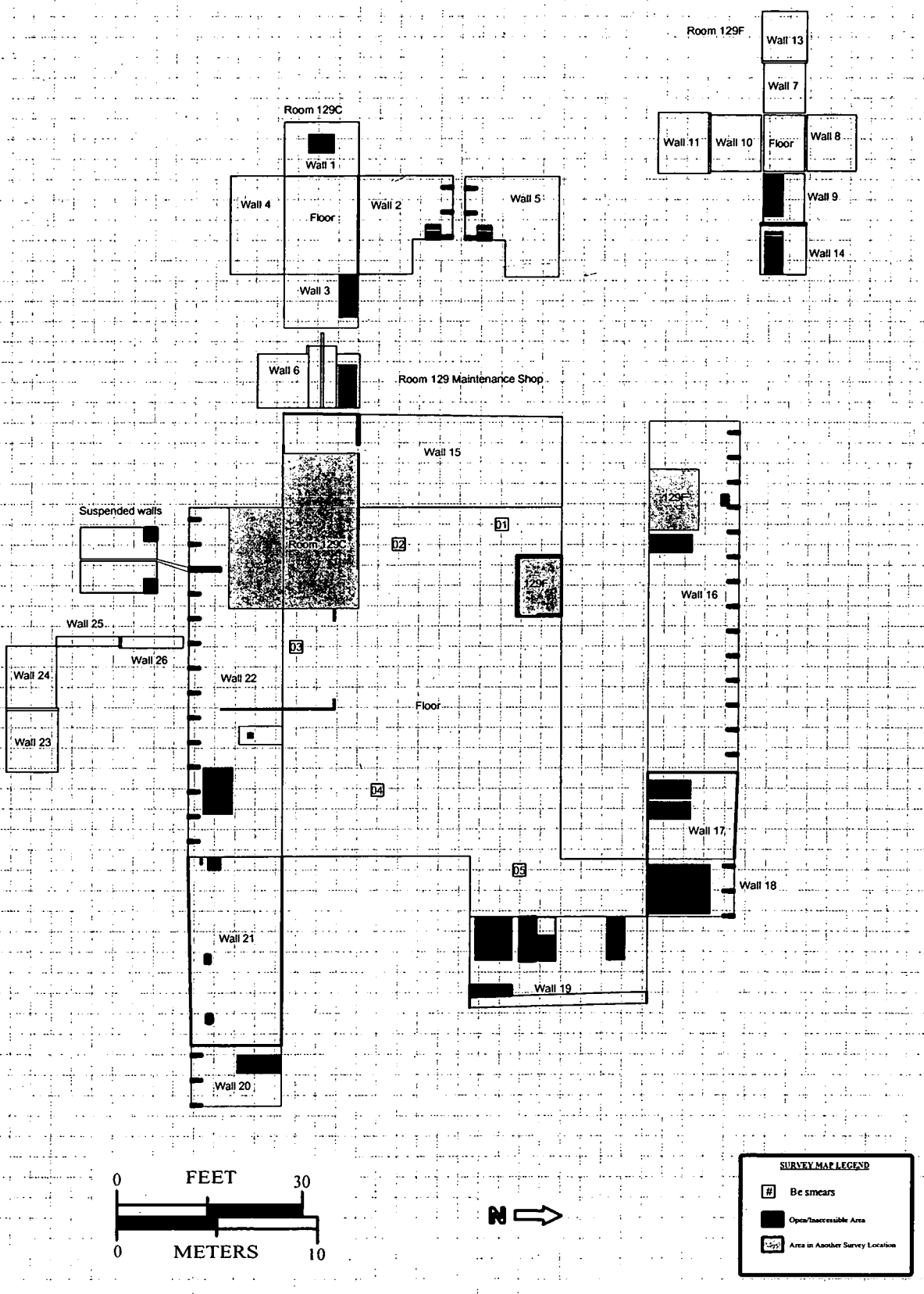
BERYLLIUM CHARACTERIZATION FOR BUILDING 771 CLUSTER

Survey Area: AD

Building: 771 Maintenance Shop Rooms 129, 129A-F, 131, 132A

Total Floor Area: NA Total Area: NA Grid Size: NA

MAP 1 OF 1



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ATTACHMENT H

Historical Review

B771 Maintenance Shop
Historical Review
June 16, 2003

Facility ID: Building 771 Maintenance Shop (Survey Area AD)

Anticipated Facility Type (1, 2, or 3): Type 3 (Based on proximity to Building 771 only). Based on low contamination potential, the interior of the Maintenance Shop is classified as a Class 2 survey unit (with the exception of the floors and lower walls of Room 131, which is a Class 1 survey unit). The exterior of the Maintenance Shop is Class 2 (for lower walls) and Class 3 (for upper walls and roof).

Physical Description: The Building 771 Maintenance Shop is an addition to the west side of Building 771, and is 60 feet by 77 feet. This area includes Rooms 129, 129A, 129B, 129C, 129D, 129F, 130, 131, 132 and 132A; Dock 2; partition walls; and the area roof.

Historical Operations:
The Building 771 Maintenance Shop was constructed in 1970 to consolidate all maintenance, pipe, sheet metal, and painting activities. Lead shielding was machined and formed in the Maintenance Area Rooms. Electrical equipment and CFCs, such as freon, were stored in the area.

Current Operational Status
The Building 771 Maintenance Shop is no longer operational. All major equipment has been removed.

Contaminants of Concern

Asbestos
The Building 771 Maintenance Shop was constructed in 1970, therefore the presence of ACM was suspected. A Certified Building Inspector performed a complete inspection of the area and sampled the suspect materials. Asbestos-Containing Material (ACM) was identified in the following materials:

- steam piping and components (removed)
- drywall joint compound (removed)
- vermiculite fill in the west exterior wall (not abated due to less than 1% asbestos content)
- window caulking on three windows on the north side of the Maintenance Shop (to be removed per the demolition plan)
- Silver-painted roof flashing (to be removed per the demolition plan)
- Anti-vibration dampening duct material or gasket material on the west side of the roof (to be removed per the demolition plan)

Beryllium (Be)
The Building 771 Maintenance Shop is not an RFETS Beryllium (Be) Area, based on historical and existing classifications, and historical use. Previous characterizations include a 1997 survey, in which Radian Corporation collected ten (10) swipes on miscellaneous horizontal surfaces, including floors, supply and exhaust ventilation. All results were less than the housekeeping criteria of 25 $\mu g/ft^2$ (and less than the current investigation level of 0.1 $\mu g/100\ cm^2$). Because no original lab data could be located for this 1997 characterization, additional smears were collected in support of the PDSP for this area. All results were less than the investigation level of 0.1 $\mu g/100\ cm^2$.

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B771 Maintenance Shop
Historical Review
June 16, 2003

Lead

The remaining paint on the Maintenance Shop interior will not be removed from the substrate.

A visual inspection of the Maintenance Shop by 771/774 Environmental Compliance personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling.

Based on process history and personnel interviews, lead was likely machined in the Maintenance Shop area. However, the solid lead by-product would not contaminate the surface. Historically, housekeeping activities would require the clean up of this type of material. Any residual lead will not raise the concentrations of the waste debris to a level above regulatory limits.

Although the Maintenance Shop area paint was not specifically sampled and evaluated for lead, the samples collected from other areas of Building 771 are considered representative of the expected lead levels in the Maintenance Shop paint. Analysis of paint from the process areas of the 771/774 complex has revealed lead levels above regulatory limits in only one out of 61 samples taken, and the elevated level was only found in the stack exhaust tunnel. However, this sample was on an orange-colored sealant. In addition, the concentration of lead in this sample would not result in an volumetric concentration of waste debris to a level above hazardous waste regulatory limits

RCRA/CERCLA Constituents

A visual inspection of the Maintenance Shop by 771/774 Environmental Compliance personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling. As a result of these observances, it has been determined that no additional sampling for RCRA/CERCLA constituents is required. Process history and personnel interviews indicate that product CFC's (such as freon) had been stored in the B771 Maintenance Shop, but no spills/releases have ever occurred, and these items have since been removed.

PCBs

Free-flowing or exposed PCBs have never been used or transferred in the Building 771 Maintenance Shop. PCB ballasts in fluorescent light fixtures were present throughout the area, and have been removed and disposed of. One storage area for PCB ballasts existed in the Maintenance Shop, but no spills or releases of PCBs resulted. The storage area has since been closed out.

Radiological Contaminants

The contaminants of concern for the 771 project, including all areas of Buildings 771 and 774, are transuranic alpha-emitting radioisotopes (including Pu-238, Pu-239/240, Pu-242, and Am-241). Based on findings documented in Radiological Engineering TBD-00161, Rev. 0, alpha-only surveys assure that the unrestricted-release limits for any other isotopes that may exist in Building 771/774 will not be exceeded.

The Building 771 Maintenance Shop was considered a "cold" area, meaning that the area was not posted or controlled as a radiological area. However, several worker interviews suggested that contaminated components might have been machined in the area. During the D&D strip-out of the area, no contamination in excess of 100-dpm/100 cm^2 alpha was around and under machining equipment. One area of contamination was identified in Room 131 (old paint shop) during the turnover survey. Because contamination was identified in the area, the paint was removed from the floors and lower walls of Room 131. A trough with a floor drain was also identified in the area. Grout was removed from the trough to allow access for survey. Several areas of elevated activity (in excess of 100-dpm/100 cm^2 alpha) were identified and remediated, and the floor drain removed. No other contamination in excess of 100-dpm/100 cm^2 alpha was identified at any other location of the Maintenance Shop.

B771 Maintenance Shop
Historical Review
June 16, 2003

Environmental Restoration Concerns

A portion of the contaminated floor drain identified in Room 131 of the Maintenance Shop remains in the soil west of Room 131. The remaining portion of the drain will be removed and controlled as radioactive material during demolition. ER will evaluate the soil around the opening of the drain.

One IHSS (150.2) exists under the Maintenance Shop area. This IHSS represented a potential radiological plume that originated from the 771 and 776 fires. Characterization of the under building contamination (UBC) has been conducted for the entire 771/774 Project. Based on the preliminary results, no remedial action is anticipated.

Additional Information

None

References

(1) *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0.

(2) *Building 771/774 Cluster Closure Project Reconnaissance Level Characterization Report*, dated August 8, 1998, Revision 2.

Further Actions

Complete the PDS process.

Prepared By: S. Roberts / D Roberts / 6/17/03

Name Signature Date

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